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ABSTRACT

This project was undertaken to develop programs for gifted/talented students in vocational education. The primary considerations were to investigate methods to identify highly creative students and to develop a curriculum model to nurture creativity. A seminar on creativity was held at Glassboro State College for the purpose of assisting in the development of gifted/talented programs in New Jersey. The seminar participants were divided into four task force sessions. Each task force was asked to respond to several questions, materials, and items. At the end of the day, a general session was held and a spokesperson for each group reported their deliberations. Specific recommendations for gifted programs resulted from these exchanges, and a guide to assist schools in beginning a program was developed. The guide included a number of details concerning a rationale, guiding principles, considerations unique to vocational school, underachievers, parent groups, creativity assessment instruments, problem solving, a format for developing curriculum materials and a number of problems for gifted students. (The complete guide is included in this document along with a program proposal for teaching gifted/talented students in vocational education; the proposal includes course rationale, objectives, and topical outline.) (Author/CT)

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FINAL REPORT

OF

CREATIVELY GIFTED STUDENTS IN VOCATIONAL EDUCATION

1977-78

GLASSBORO STATE COLLEGE

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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ABSTRACT

PROJECT TITLE Creatively Gifted Students in Vocational Education

LEGAL NAME OF DISTRICT OR INSTITUTION

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DESCRIPTION OF PROJECT

Use this sheet and no more than one other to type in single-spaced form a statement of project objectives, procedures that were followed, state and local priorities emphasized and the contribution of the project to vocational education.

This project was undertaken to develop programs for gifted/talented students in vocational education. The primary considerations were to investigate methods to identify highly creative students and to develop a curriculum model to nurture creativity.

A seminar on creativity was held at Glassboro State College for the purpose of assisting in the development of gifted/talented programs in New Jersey. Specific recommendations for gifted programs were made by task force participants.

As a result of the research, a guide to assist schools in beginning a program was developed. The guide included a number of details including a rationale, guiding principles, considerations unique to vocational school, underachievers, parent groups, tests, problem solving, a format for developing curriculum materials and a number of problems for gifted students.

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A Report on a Seminar for the Creative Students in Vocational Education

A. INTRODUCTION

1. This project dealt with developing a foundation on which to build a program for gifted students in vocational education; especially in the area of creativity.

Efforts are being made to meet the needs of various types of students in our society. However, little attention has been given to the creative individual. "If they are creative, they should be able to get along themselves" seems to be a common attitude taken by educators. Most would agree that this is educationally unsound and indeed unfair in a society which supports the ideal that each individual should be given the opportunity to reach his or her full potential.

This research was directed toward investigating the area of creativity and developing some materials which could be used to help meet the needs of highly creative students in vocational education. Through this project, several programs will begin in the 1978-79 school year.

2. Objectives

(a) to help the vocational teachers identify the creatively gifted student

(b) to develop a format to be used in developing activities to nurture creativity.

(c) to recommend a project to develop a curriculum for creatively gifted students in vocational education.

3. Background Information

Relatively little research has been undertaken to help meet the needs of creative students within our education system, including vocational

education. Perhaps this is due to a lack of interest in the area of creativity on the part of researchers, or that creative responses are divergent rather than convergent in nature, therefore, not readily falling into neat, easily analyzed categories. In reviewing the literature, it seems to raise almost as many questions as offer answers. It also reveals a number of contradictions. For instance, many researchers suggest that there is no single test which can identify creativity. In turn, a great many studies were conducted by administering a single test. Whatever the reasons are for neglecting research in creativity, the needs of creative students are not being met.

B. THE REPORT

1. Procedures

Several procedures were used in general which would affect each of the objectives. These included an extensive review of the literature relating to creativity and a seminar for creativity in vocational education.

On April 21, 1978, a seminar on creativity was held at Glassboro State College. The purpose of the seminar was to assist in developing programs for vocational students in the state of New Jersey. The keynote speaker at the seminar was Dr. Ted Gourley, Coordinator for the Gifted and Talented, New Jersey Department of Education. This was followed by remarks about the Glassboro project. The seminar participants were divided into four task force sessions. Each task force was asked to respond to several questions, materials and items. Each group was encouraged to go beyond the suggested topics and include any discussions which could enhance the ultimate goal, to help the

creatively gifted students in vocational education. At the end of the day, a general session was held and a spokesperson for each group reported their deliberations. A complete report of the seminar is enclosed with this report and is available to anyone interested.

Procedures for objective no. 1, "To help the vocational teachers identify the creatively gifted student", began with extensive readings. A primary source was the entire collection: The Journal of Creative Behavior. These included Vol. 1, No. 2, through Vol. 11, No. 2, second quarter 1977. These are published four times each year by The Creative Education Foundation, Inc., Buffalo, New York.

In addition, a number of other publications, listed in the bibliography, were resource materials. Consultations were held with the INSTITUTE FOR CREATIVE EDUCATION at the South Jersey Education Improvement Center (EIC). The researcher also visited Pompton Lakes school district to review their gifted education program. The researchers attended a one day institute with Dr. Irving Sato, Director of the National/State leadership training institue on the Gifted. The topic was "Educational Practices for Teaching Gifted and Talented Students".

The procedures for objective no. 2 "To develop a format to be used in developing activities to nurture creativity," changed emphasis in the project. The format was developed quickly and more emphasis was placed on developing activities and self learning packages.

This part began with identifying a variety of vocational subject areas. Sample problems were developed for Trade and Industrial, Technical Occupations, Home Economics and Distributive Education. The problems are included in the guide which is part of this report.

A format was developed and presented to the seminar participants. Sample problems and learning packages were also developed and presented for their consideration.

The third objective was to "recommend a project to develop a curriculum for creatively gifted students in vocational education". This was also presented to the seminar participants. A meeting was also held with Mr. Joseph English at Gloucester County Vocational School and the researchers.

2. Findings

The review of the literature indicated that there is no single test for creativity, but offered a number of individual tests which seem appropriate. The researchers altered some of these, and developed new ones. These are included in the attached guide. It should be noted that these have not been validated at this point, however, the researchers feel that they have a great deal of promise.

The creativity seminar offered a number of suggestions, criticisms and comments. A summary of the recommendations are presented as follows:

1. Programs for the gifted should include the vocational school students and not be limited to the academic school students.
2. The State Department of Education should give a priority of an identification program for the gifted.
3. Dr. Ted Gourley should meet with the area vocational technical school directors at one of their monthly meetings. This could result in a beginning of such a program with them and to encourage participation in a gifted and talented project.
4. A campaign should be undertaken to make the boards of education and superintendents aware of the needs of the gifted or potentially gifted students.
5. It was felt that there are students in the CETA programs that are gifted. Some projects could be geared to meet their needs.
6. Public relations or communicational efforts should be made to make the general population aware of programs for the creative in vocational education.

7. A wide scale effort should be made to make vocational teachers perceive their discipline as being involved or potentially involved with the gifted and talented. The teachers must become aware of the talents in their own disciplines.

8. An effort should be made to insure the recognition for the gifted vocational education student. At graduation they should be recognized in the same way as the academic students. The talented vocational students should be given credit throughout the school system.

9. Vocational schools should enter the "Olympics of the Mind" competition and any other contests for the gifted.

10. There is a need to develop and maintain a collection of problem solving experiences, based in some localized bank, from which everyone can draw.

11. It is urged that specific teaching methods and strategies be examined to determine the most appropriate ones to be used with creative students.

12. The talents of this special group of students cut across several occupational areas and need intradisciplinary and interdisciplinary types of activities.

13. It is recommended that community based groups including parents, teachers, guidance counselors and others become involved in the education of the creative child.

14. Consideration should be given to establishing alternative approaches such as teams. These could be parents and students, or parents and teachers together to deal with the gifted students. The utilization of parents would also enhance the vocational school's image in the community.

15. Teachers should be given the opportunity to provide input prior to the implementation of a gifted and talented program.

16. It is recommended that in-service programs be made available to all teachers within the vocational schools to sensitize them to the creative students and their needs. This should also develop an awareness of what the teachers can do to nurture the development of the creative talent.

17. The in-service could be provided by the State Department of Education, the Educational Improvement Centers and Glassboro State College.

18. It is suggested that effort be exerted to identify the creative or gifted child as early as possible.

19. Assessibility to the special programs for the gifted and talented should be based on performance rather than a traditional testing program.

20. Specific test instruments (written or psychomotor) should be evaluated to determine their degree of reliability and validity. Alternative forms of the testing instruments should be available; i.e., a test for Spanish speaking students.

21. An attempt should be made to identify creative minority students. This includes an effort to include creative females in vocational settings.

22. Provide additional support services to minority and female students who are creative, if such services are needed.

23. It is urged that Spanish speaking students or other foreign students have basic English competency skills before they are placed into creative groups.

24. Additional support should be sought from labor unions for identification and involvement of gifted students.

25. Consideration should be given to develop a college curriculum at both the undergraduate and graduate levels.

26. Investigate the possibility of developing a program cooperatively with the college, community college and vocational school involved.

27. An advisory committee should be established for gifted programs in vocational education.

28. Glassboro State College should take the leadership to identify the needs, solutions, materials and curriculum.

29. There is a need for joint effort and coordination of academic and vocational secondary education. An example may be a project involving energy. Perhaps solar energy can be a topic which can be capitalized on to involve both types of schools.

30. In developing a good program, all possibilities must be considered including shared time vocational, full time vocational, comprehensive schools, CETA programs, etc.

31. First efforts should be directed toward a vocational school which has an interest in developing such a program.

In developing a format to be used in developing activities to nurture creativity it became apparent that problem solving seemed to be an excellent approach to teaching the gifted. At present, there is not a great deal of problems available and teachers may want to develop some of their own. The format or model for a problem solving activity appears in the guide with five sample problems.

This format with a brief description is as follows:

I. Purpose of the Problem - (A brief general statement)

II. Statement of the Problem - (State in broad terms to avoid a stereotyped solution.)

III. Limitations - (Some limitations should be given otherwise a student may be asked to "invent something." This can help the problem be easier to formulate ideas.)

IV. Ideation

*Intuitive Ideas - ("Spark of Genius")

*Idea Generation Methods - (Brainstorm, forced relationship, discussion)

*Sketching - (Graphically generating ideas)

*Model Making - (Quick mock-up models may be used to see a three dimensional problem.)

V. Evaluation of Ideas - (Try to determine the best solution or combine two into a better solution)

VI. Develop the Product - (The product is the actual completion of the problem)

VII. Analysis of Project/Evaluation of Product - (Critique and/or evaluations of the problem solution)

VIII. The Project Extended - (This allows the student the flexibility to go beyond the norm in self directed and self initiated study.)

In addition to the format, five sample problems have been developed and appear in chapter V of the guide. These include problems for a variety of programs including welding, drafting, electronics, home economics and marketing.

The third goal resulted in several proposals for implementing gifted programs in several area vocational schools. These should begin in the 1978-79 school year.

3. Dissemination

Resulting from the seminar, several of the recommendations have been completed. A new course entitled "Teaching Gifted/Talented Students in Vocational Education" has been proposed. A copy of the course proposal is attached to this report.

Another recommendation was to have vocational schools enter the "Olympics of the Mind" competition and other contests for the gifted. Gloucester County Vocational School did participate with a team. Through the proposed course, publicity for the "Olympics of the Mind" and an awareness by school officials, some headway has begun.

In order to help achieve the goal of teachers identifying creative students and the second goal of developing activities for these students, a guide has been prepared. The guide extends beyond these immediate goals to assist in beginning a program for gifted/talented students in vocational education. The guide is as follows:

A GUIDE TO ASSIST IN BEGINNING A PROGRAM

FOR GIFTED/TALENTED STUDENTS IN

VOCATIONAL EDUCATION

BY

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Department of Industrial Education and Technology

Glassboro State College

This Project was funded through a grant
from the New Jersey Department of Education
Vocational Division
1978

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I. THE NEED FOR PROGRAMS FOR GIFTED/TALENTED STUDENTS IN VOCATIONAL EDUCATION.

To those interested in the creative and gifted/talented individuals in general, it seemed obvious that a great deal needs to be done to help meet the needs of these individuals in vocational education. The New Jersey State Department of Education, Vocational Division, funded a project to see what could be done to help meet the individual needs of gifted and talented students in vocational education. The talented vocational students have been overlooked too long and they are just as important, just as worthy, and just as sensitive as anyone else.

It would seem relatively easy to defend a need for such programs in the vocational schools. The most obvious rationale may be because of the sheer numbers of individuals we are dealing with. Of the hundreds of thousands, perhaps millions of students, a certain percentage is sure to fit in this category. Secondly, a number of studies show that there is a low correlation between creativity and I.Q. as measured on standardized tests. We may indeed have countless people with creative potential in our vocational schools, with little to nurture it. Many creative people are activity oriented. They like to "do things". Vocational Education has the laboratories to capitalize on this.

Let us examine the "underachievers" for a moment. How many potentially gifted individuals may not see a relevance to their education in a traditionally academic high school? Many figure it's a waste of time and become poor students. Some drift around, some may wind up in a vocational school, some drop out. The point is, many are gifted, but are overlooked because of grade scores which they really don't care about, anyway.

The vocational schools may be a haven for creative individuals. We cannot afford to allow this human potential to be lost.

WHAT SHOULD A GIFTED AND TALENTED PROGRAM TRY TO ACHIEVE?

The goals for a program for the gifted may be determined by the individual school system. This may include the board of education, school administration, teachers, parents, students and community groups. Some considerations should be kept in mind when establishing such programs. One of the main reasons for gifted education is to give interaction between gifted students. We must insure that the gifted students get together on a regular basis. This does not necessarily have to be every day, but some regularly scheduled interaction. Gifted students should also get together with children of mixed abilities on a regular basis. This is a typical situation which exists in most vocational classrooms. We must also insure that gifted students have an opportunity to work independently.

A program for gifted/talented students should try to help the individual become aware of him or her self. We need to try to strengthen the self concept of people. Quite often gifted people who are the underachievers have a poor self concept.

SEVERAL GUIDING PRINCIPLES IN DEVELOPING A PROGRAM

First, we must respect individuality and respond to it. We can do this by our educational actions.

a. Recognize a need to do it.

b. Make resources available.

c. Foster flexibility in the teachers. If a gifted child is taken out of class, perhaps he or she shouldn't have to make up all the work that is missed. We may be asking children to enjoy to work and to extend themselves on one hand, and penalize them on the other.

Try to promote open-mindedness in the skeptics. These include other students, faculty and administration. We can enhance learning by the following:

a. Allow students to experiment and explore unknown areas.

b. Expose students to a variety of environments and experiences.

c. "Turn on" the student and get out of the way, let them extend themselves as they see fit.

d. Emphasize advanced levels of operations in problem solving.

e. Let the student be involved in his or her own destiny. At times, let them study things that are important to them.

Some characteristics of the educational process should be considered.

a. In addition to the student extending him or herself in their major vocational subject area, some activities should be interdisciplinary. Their work can cross course departments.

b. We should occasionally have non-graded experiences. This will eliminate or reduce the threat of grades. Our society is generally anti-failure, thus reducing the willingness or desire for experimentation. Creative problem solving lends itself to experimentation.

c. We should develop open-ended objectives in our curriculum to include broad questions and assignments. Let the student go beyond what is expected.

d. The experiences for the gifted should be on going throughout the school year.

It is necessary to help meet the needs of the creative individuals who are of a racial minority or non-English speaking students. All creative students should be identified regardless of racial or cultural differences. It may necessitate the need for supportive services before gifted children are brought into the system; i.e., Spanish speaking students may need to

gain certain basic English competencies before being included in creativity activities or experiences.

The learning opportunities in a regular curriculum should include:

A. Exposure--the students should be exposed to experiences outside of the regular curriculum. The grade levels or ages need not be matched. The subject materials should include those which are new and unusual.

B. Extending--Extend what the subject area is normally about. The students should have the opportunity to elaborate on the regular curriculum through additional working time; additional materials; additional learning activities; and the opportunity for self-initiated and/or self study.

C. Development--The students should be provided with instruction which focuses on a thorough or new explanation of a concept or skill which is part of a general learning activity within the regular curriculum.

II. CONSIDERATIONS UNIQUE TO VOCATIONAL SCHOOLS

In beginning any program, some difficulties are sure to occur. A number of problems have occured in beginning programs for the gifted and talented in academic schools. These and problems unique to vocational schools may indeed occur. We may at times face a problem which we can't solve. However, we must try to break problems down into smaller, solvable problems and continue. Following are a few problems to be aware of which may be unique to vocational schools.

a. The Problem of a Teacher's Humble Self-Concept.

A seminar was held at Glassboro State College to assist in developing programs for creatively gifted students in vocational education. Part of the discussion centered around a potential problem of teacher acceptance of a program for the gifted and talented students. Most vocational teachers have a humble point of view of their discipline and do not perceive it as contributing anything to the gifted and talented student. This must be changed. Teachers must become aware of the special talents necessary in their work and try to recognize the students who have acquired, or have the potential to acquire, these talents in abundance.

b. The Problem of Stereotyping Subjects Areas for the Gifted

We must be on guard against stereotyping subject areas for the gifted. That is, in order for an individual to have a gift of high intelligence, he or she must excel at math or science. We must also be on guard in viewing an individual to have a gift of being highly creative he or she must excel in art or creative writing. Students who are intelligent and/or creatively gifted may be found in any of the subject areas of vocational educations.

c. Underachievers and Discipline Problems May be Gifted.

Teachers may scoff at the thought that a student who is a constant discipline problem, and perhaps fails a number of courses could be gifted. Students who are underachievers and/or discipline problems are usually overlooked as being creatively gifted or talented. This is not to say that all discipline problems or underachievers are gifted. However, a number of problem students, including drop-outs, may, in fact, be extremely talented individuals. Part of the behavior pattern may stem from frustration between the incompatibility of teaching methods with its system of rewards, and the student's learning ability or disability. Quite often creative children need to talk as much in class as they do outside of class. Usually, talking in the classroom is considered bad behavior. Some gifted students may have a reading disability. This in turn affects most other subjects and may place the students low in class standing. To further complicate things, the students may be destructive as an extreme reaction against the system which is not meeting their need. Yet, these students may have a very special talent in organization, manipulative skills, problem solving, or as a social leader. (A social leader need not be socially acceptable, i.e. gang leader, etc.)

d. Vocational Programs Vary a Great Deal.

Traditional academic schools are fairly consistant in their schedules. The vocational schools seem to vary much more. Some vocational schools offer all subjects on one site. Others only offer the technical subjects and students are transferred to another school for general education subjects. Some traditional schools offer vocational subjects and so on. Care must be taken to consider

programs for gifted/talented students regardless of the organizational structure. To "let the other group do it" may be a convenient way to look away from the problem, it certainly will do nothing to help meet the needs of these individual students.

III. GRASS ROOTS CONSIDERATIONS

One of the first steps necessary in beginning a program for the gifted in vocational education would be to identify a teacher(s) or a member of the administrative or guidance staff to be responsible for the program. A team has the advantage of generating more ideas for the program in a group effort rather than a single individual. The responsiblities can also be divided which can reduce the burden on one individual.

The team can coordinate activities, oversee and accumulate curriculum materials, and be the individuals which students can identify the program with. The team should also maintain close contact with parent groups associated with the program. They could also maintain contact with civic and/or industrial organizations.

PARENT GROUP

Consideration should be given to establishing a parent group early in the planning stage for a program for the gifted. A parent group offers a number of advantages. They can provide assistance to the teacher, perhaps to the extent of being a teacher aide at times. They can offer suggestions as well as acting as a sounding board for new ideas. The utilization of parents would also enhance the image of the program as well as that of the school in the community.

CONSIDER THE SCOPE AND SIZE

In planning a program several factors should be considered relating to scope and size. For instance, how many students will be involved? How often will they meet together periodically and for how long? Will the program cross grade levels? If it does (which is perfectly all right) how will the program progress in succeeding years?

POTENTIAL PROBLEMS WHICH SHOULD BE AVOIDED

Care must be given not to make students "snobs" in that they think they are superior individuals to other students in the school. A long range problem which can arise is one with parents of students who are selected to be in the program for the gifted one year and not selected the next year. Some parents would be proud of having their child selected into the program and may boast quite a bit about it. If their child is later dropped from the program, they may find this quite difficult to accept. A logical rationale should be developed for selecting students into the program and if this would be carefully explained, a great deal of embarassment may be avoided.

FOSTER FLEXIBILITY

A number of people will be skeptical about such a program. An attempt should be made to open their minds toward the program. It is necessary to foster flexibility of other teachers in the school. If a gifted child is taken out of class, perhaps he or she shouldn't have to make up all the missed work. Otherwise, we are trying to extend students and enjoy work in one hand and penalizing them in the other. In addition to promoting o open-mindedness in teachers, we must also promote open-mindedness in other students and the school administration.

Fostering flexibility in participating teachers should also be encouraged. Some experiences should be non-graded. This could encourage students to experiment and explore unknown areas. The students should be encouraged to explore unknown areas. Open new horizons to the student. Expose them to a variety of environments and experiences.

GROWING PAINS

Few programs if any run completely smooth from the beginning. Problems will arise, some foreseen and and some unforeseen. When evaluating the program,

keep in mind that the primary consideration is that the needs of the students should be met. Teaching difficulty and administrative problems are secondary.

IV. Creativity in the Classroom

Although some conditions conducive to establishing a creative attitude in students may be those of a physical or environmental nature, such as room colors, lighting, equipment and floor plan, the most important concern is the human interaction that should take place. This primarily the interaction between the teacher and the student.

Perhaps the most important condition in developing creativity falls into the realm of individual differences. Guilford (Gowan, 1967) mentions that creativity became an object of scientific study primarily because of interest in individual differences. Dow (Anderson, 1959) points out that since each human being is an individual physically, it must follow that his thinking apparatus is also individual.

The highly creative person is one whose individual differences are, in all probability, not being adequately met within our education system in general. The creative students should have the opportunity to learn on their own if this is what they want to do. Torrance (1964) concluded that people will develop along lines they find rewarding. A system of conformity, where creative individuals feel that they must lose their identity or constantly repress their thinking, is not harmony or growth, and therefore not education. In addition to making students docile, conformity seems to be a most important characteristic of our classrooms. Certinly in a democracy each individual should be provided with an opportunity to reach his or her full potential. This should not be limited to vocational expertise, but include problem solving skills for an evolving technological society.

Our educational system has made a number of inroads to meet the needs of the high I.Q. person, but little for the creative person. Torrance

(1964) says that the manner by which children are treated will increase or decrease their creative development. He goes on to say that creative people can learn a lot in a creative situation, whereas in a traditional situation they do not. The creative person should not only be permitted but encouraged to emerge within our vocational education system.

An educationally sound, creative environment would help provide for the needs of the individual. Certain considerations can foster the learning experiences that take place. Divergent thinking should be encouraged by giving problems which are open ended, or have a number of solutions rather than limiting the educational experiences to those of a convergent nature with a single correct answer. Each individual should be free to take a new direction on a given topic of assignment. The teacher can provide challenging problems which may be described as providing "food for thought" and encourage aesthetic interests. Students enjoy learning when they can think creatively. Creative children like to be involved in different kinds of tasks and need outside encouragement to continue in their efforts. Our educational program can provide an opportunity for the highly creative person to learn by allowing student initiated inquiry. This work should be judged on individual progress as opposed to group norms. Students should also have the opportunity to investigate unusual interests. Torrance (1964) offers conditions which he feels are conducive to producing creativity. These include the absence of threat, self-awareness, and openess to the ideas of others.

Creative people need help in recognizing self differentation, as well as help in recognizing their talents and potential. Authoritarian teachers can have an adverse effect on a creative individual. In order to have

a better understanding of how authoritarian teaching methods affect creativity, it may be in order to discuss some general traits of the creative personality. These traits are general in nature and do not apply to all creative people, nor are they presented as any kind of a criteria for creativeness. Guilford says the creative person tends to be more confident, likes divergent thinking and appreciates aesthetic expression. He further mentions factors which include originality, fluency and flexibility in thinking, sensitivity to problems and the ability to state a problem in another way (Anderson, 1959). Gowan, Demos, and Torrance mention traits which include humor, fantasy, playfulness, complex personality and a great deal of free energy (Gowan, 1967). Torrance found that highly creative children, especially boys, have a reputation for wild or silly ideas. Their ideas are frequently "off the beaten track" and their work is characterized by humor, playfulness and a lack of rigidity.

The traits mentioned can have an effect on a creative individual's learning when exposed to an authoritarian methods of teaching. Anderson states that domination is found in the schools, homes, factories and government. He goes on to say, "In the psychology of human behavior all uses of force, coercion, domination, shame, blame, guilt have one effect: the stifling of the creative process, the annihilation of originality" (Anderson, 1959, P. 104).

Teachers in a situation with creative children may sometimes feel threatened. Authoritarian teachers try to make the child conform to patterns which they themselves feel are normal. Like the low I.Q. student is often a nuisance in a classroom, as the energetic trait can easily be applied into destructive activities when not harnessed into productive activity. This may, in part, be due to the frustration caused

when forced to do what teachers, parents and peers demand, without having an opportunity for creative expression. Teachers who constantly reject divergent behavior may very well have personality conflicts with highly creative students. This can be compounded when the highly creative student is often a nuisance in a classroom, as the energetic trait can easily be applied into destructive activities when not harnessed into productive activity. This may, in part, be due to the frustration caused when forced to do what teachers, parents and peers demand, without having an opportunity for creative expression. Teachers who constantly reject divergent behavior may very well have personality conflicts with highly creative students. This can be compounded when the highly creative student doesn't try to emulate the teacher or his or her peers. Being sensitive can be difficult for individuals. By demonstrating sensitivity a male student is imposed with a stigma, because sensitivity is a feminine characteristic in our society. The creative students; flexibility trait is directly opposed to the rigidity trait of the authoritarian teacher. As Silberman (1970) points out in his book, Crisis in the Classroom, teachers often suppress interest because the activity at hand is not on the day's agenda. He indicates that ends are often confused with means. He gives an example of this by describing a group of children gathered around a turtle with a great deal of interest. The rigid teacher, with an obsession for agenda, ordered the children to "put away the turtle, because it was time to study crabs." The authoritarian method of teaching can have long range, serious effects on learning disabilities of the creative student. Torrance (1964) says that children who repress creativity will also repress questioning, exploring and experimenting. Instead of becoming stimulated with inquisitiveness, they may lose interest in learning altogether. It would be a terrible thing if schools injured students

in an effort to help them.

Torrance points out that developing an individual's creative growth is rarely used as an objective of the secondary education curriculum. He also points out that not only is creativity not encouraged but is very often discouraged. He illustrates this with the familiar saying that "curiosity killed the cat", which could lead one to fear some sort of punishment for inquiry. Part of the reason for neglecting creative work may be that at times it can be expensive, time consuming and/or messy.

One has to be a part of our educational system for a short time to see that a much greater emphasis is placed on average, below average and the high I.Q. rather than the highly creative students. For example, testing is primarily related to memory and convergent thinking as opposed to divergent thinking. This may be illustrated by the emphasis placed on standardized tests relating to reading and math skills in elementary and secondary schools to determine the intellectual abilities or the potential of students. The same type of tests are used for college admissions at the undergraduate and graduate levels. Little, if any, large scale testing takes place to measure creative abilities.

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V. PROBLEM SOLVING

Problem solving is the highest form of learning and is a sound approach to teach gifted students. A format for developing problems and several sample problems are given in this section.

To encourage creative thinking in students, a problem should be stated in broad terms rather than very specific terms. A broadly stated problem encourages divergent, or different solutions to a problem. A convergent problem is one that is likely to have one correct answer. By stating problems broadly we tend to avoid stereotype solutions. A more "open ended" problem lends itself much better to creative problem solving.

Some examples of poorly stated problems with examples of improvements are as follows:

POORLY STATED PROBLEM (Encourages Stereotype Solutions)	IMPROVEMENT (Encourages Divergent Solutions)
1. Design a toothbrush.	1. Design a new way to clean teeth.
2. Design a wheel.	2. Design a new way to support a vehicle.
3. Design a rowboat.	3. Design a floatation device.

The problems that fall into the "poor" category are there because we have a fairly fixed concept of a toothbrush. The problem gets the student off on the wrong foot because its difficult to break away from functional fixedness. If we can encourage the student to restate a problem or think openly about it, unique solutions are easier to develop.

A problem solving format was developed to allow the students to experience new problems. The format also includes an "extended" section where a gifted student can go beyond what is normally expected.

PROBLEM SOLVING FORMAT

I. Purpose of the Problem

II. Statement of the Problem

III. Limitations

IV. Ideation

*Intuitive Ideas

*Idea Generation Methods

*Sketching

*Model Making

V. Evaluation of Ideas

VI. Develop the Product

VII. Analysis of Project/Evaluation of Product

VIII. The Project Extended

GIFTED/TALENTED PROBLEM SOLVING: DESIGN A TOY

I. The Purpose

Purpose to provide an enrichment experience which is typical of some aspects of industry.

II. The Problem

Design a toy which can be made from one or more regular tennis balls. The toy may be a game using the tennis ball or it may use the tennis ball(s) as parts of the product.

III. Limitations

1. The tennis balls may be cut, glued, fastened, painted and changed as the student sees it.
2. The toy may be used by children in any of the following age groups: 6 mos. to 2 yrs; 2 - 4 years; 4 - 7 years.

IV. Ideation

Students should make rough sketches and/or work in three dimensions. They may make preliminary study models using parts of, or whole tennis balls.

V. Evaluation of Ideas

You may evaluate your design alternative with you instructor and/or classmates. You may show your preliminary models to children in the age bracket you are designing for.

VI. Develop the Product

Make an accurate, detailed, working model of the toy.

VII. Assessment

Ask a few children to play with the toy you made and/or if they would like to own one. Perhaps you can place your toy among several other toys and observe to see if children take time to play with it.

VIII. Extended

Bring advertisements, or actual toys, to the class for discussion. You may take your idea to a manufacturer for criticism or possible sale.

GIFTED/TALENTED PROBLEM SOLVING: WELDING

I. Purpose

The purpose of this problem is to provide an enrichment activity for students taking a welding program. The problem could provide elaboration of the regular curriculum and give insight to other uses of the welding process.

II. Statement of the Problem

Using steel cut nails as your primary material, create and produce a sculpture of an unusual animal. An unusual animal kingdom.

III. Limitations

1. The project is to be an original design.
2. The welding aspect is to be completed within ten hours.
3. Other metals may be used in addition to cut nails. These may include sheet metal, metal scraps and band iron. However, the project may be limited to the cut nails.
4. The final project should appear in its natural state and should not be painted.
5. The final sculpture is to be mounted on a piece of wood. This may be a section of a tree, a piece of driftwood or wood as the student sees fit.
6. The sculpture can be any size.

IV. Ideas

1. Develop a list of as many animals as possible. You may ask a group of people to name as many as they can in 15 minutes.

2. From this long list of animals, select five which interests you most or those you feel will answer the problem best.
3. Using a pencil with short straight lines to represent the cut nails, make sketches of three of the five animals chosen.
4. Make a model using tooth picks and glue. The tooth picks will represent the nails. You may make a model for one or more ideas.

V. Evaluate Ideas

You may make an evaluation of your sketches and/or model(s) yourself. It would be helpful if you discussed the solutions with your teacher, the art teacher and several other students in the program.

VI. Develop the Product

.Referring to the model and/or sketches, begin to fabricate the sculpture. If problems arise in the construction, try to solve them yourself. Don't ask the instructor unless you are really stuck.

.Keep in mind that the sculpture can be three dimensional, not necessarily flat.

VII. Review the Project

Show the completed project to your instructor and classmates discussing the problem and its limitations. Ask them for their opinions and criticisms of it.

VIII. The Project Extended

.If you enjoyed the experience, you may want to do another.

.Perhaps you may want to select a different subject than an animal.

.Go to the library and find materials on welding sculpture.

.Visit a museum to see how others have used sculpture as a means of expression.

GIFTED/TALENTED PROBLEM SOLVING: DESIGN AN ELECTRONIC DOOR OPENER

I. The Purpose

The purpose is to provide an enrichment activity which exemplifies the accelerating advancements in electronics which affects our daily living.

II. The Problem

Design a schematic which would represent an electronic device which would open a door by using one's voice.

III. Limitations

1. The device must work on typical 110V house current.
2. The device would have to be activated from a minimum of five feet and a maximum of eight feet.
3. The voice which activates the device would be a normal speaking voice.
4. The student may make the device open to one or more words.
5. Any electronic components may be used to design the device if it will be carried thru the schematic stage.
6. If the project is carried into the "VIII Extended" phase and constructed, a maximum of $40.00 may be spent for components in addition to those available in class.

IV. Ideation

Students should make a minimum of three sketches of schematics which could possibly answer the problem.

V. Evaluation of Ideas

You may discuss and evaluate your design alternatives with your instructor, classmates, and/or electronic engineers or other experts. Have others critique your ideas for operational feasibility.

VI. Develop the Product

The schematic is to be made using mechanical drawing instruments and templates. The drawing is to be made on training vellum which can be easily reproduced.

VII. Assessment

The student should offer an explanation of how the electronic components perform within his or her design to accomplish the task. At the completion of the drawing, have your instructor critique your design solution. In addition, have the drafting teacher critique your drawing from a draftsman's technical illustrator's point of view.

VIII. Extended

(a) In order to insure that the device functions, the student may choose to make a prototype model. The door may be a full or scale model, perhaps 12" x 24". The device should be designed to fit into the door and open it when spoken to.

(b) If the student is interested in the schematic drawing only, he or she may make an ink tracing of the pencil drawing using Leroy or some other mechanical lettering instruments. A ruling pen may be used to ink the line work. Consult the drafting teacher for technique.

(c) The schematic may be carried then to a printed page. The student may make arrangements with the graphic arts teacher to make a negative, a plate and run multiple copies on an offset press.

GIFTED/TALENTED PROBLEM SOLVING: MARKETING A PRODUCT

I. The Purpose

The purpose is to provide an enrichment activity which is typical of the kinds of problem involved in promoting a new commercial or industrial product.

II. The Problem

A corporation has developed an aerosol spray which can be sprayed around the perimeter of a house and will completely eliminate mice in the house for an entire year. The problem is to develop a crash marketing program nationwide. The marketing program will include:

(a) Developing a name for the product.

(b) Design a label for the aerosol spray.

(c) Create a 30 second T.V. commercial.

III. Limitations

1. The company is under a strict time schedule. Deadlines, when established, should be strictly adherred to.
2. The label can only be printed in 2 colors with a white or colored background.
3. The 30 second T.V. commercial should be in black and white.
4. Other students, friends, family or teachers may be used in the T.V. commercial. The student or students undertaking the project will be responsible for direction and script.

IV. Ideation

1. List as many possible names as you can which could be used for the product. A brainstorm session with a group

of students may be utilized. The more names you have to choose from, the better the chance of finding a clever or unique name.

2. Make as many sketches of possible label designs. Use colored pencils, crayons, etc. to indicate colors. Make three "mock-ups" as accurately as you can and cement or tape them to three aerosol cans.
3. Begin writing the script for the 30 second commercial. Read the script aloud and check the time. Rewrite, refine and rewrite again several times until you think you have it perfect.

V. Evaluation of Ideas

1. Discuss your label designs with your teacher and the art teacher in the school. You may also discuss them with the graphic arts teacher to be sure that they would be possible to print.
2. With the 3 "mock-ups" develop a systematic marketing survey. You may choose every fifth person entering the library or some similar situation. Ask these individuals for a moment to react to your designs. Keep your survey brief, but to the point. You may ask:
   (a) Which label appeals to you most? (a)___(b)___(c)___
   (b) Does the label give the feeling that you are buying a quality product? Yes___No___
   (c) Would you buy the product for $3.00? Yes___No___
   (d) Would you buy the product for $2.00? Yes___No___
   (e) Would you buy the product for $1.00? Yes___No___

(f) Who would buy the product? Men___Women___Both___

(g) Which color would best appeal to Men?_____

(h) Which color would best appeal to Women?_____

*Add your own questions which would benefit your data gathering.

3. After soliciting a number of responses (25-50), try to determine which label has the most selling potential. This will be the final design to be developed.

4. Have other students, teachers react and/or critique your T.V. script.

VI. Develop the Product

The T.V. commercial is to be actually taped. Check out a T.V. camera and seek instruction on how to use it. You may use models, other individuals, make costumes, etc. to enhance your commercial.

VII. Assessment

Be critical on each detail of your final tape. Ask a few of your classmates and teachers to take 30 seconds to view the final advertisement. Ask them for their reactions. You may develop a questionnaire seeking a detailed assessment of the commercial. This could include:

(a) The uniqueness of the commercial. Good___Poor___Average___

(b) The sound. Good___Poor___Average___

(c) The clarity. Good___Poor___Average___

(d) "Professional touch." Good___Poor___Average___

(e) Would you buy the product based on the commercial?

Yes____No___ ?_____

VIII. Extended

1. Write for a copyright (c) application and investigate how to copyright a design.
2. Try to do a color T.V. commercial.
3. Try to produce the final label. Specify the type and information on the label. Have it printed in the print shop if your school has one. Closely observe each step in the printing process.
4. Investigate other marketing procedures, such as designing and building a sales display for the product.

GIFTED/TALENTED PROBLEM SOLVING: IDENTIFY AND PRODUCE AN OLD FASHIONED MEAL

I. The Purpose

To provide an activity to develop an appreciation of the extent to which individuals in the past had to prepare foods.

II. The Problem

Identify a meal which you would like to prepare. In preparation of the meal, the student must prepare all of the foods to be used in a natural manner.

III. Limitations

1. No canned goods may be used.
2. No foods which have undergone a physical change may be used (i.e. butter from cream, flour from wheat, etc.)
3. The students may churn their own butter, grind their own flour, grind their own coffee, etc.
4. The meal should have all the essentials for a well rounded breakfast, lunch or dinner.
5. Berries, fruits, etc., may be purchased; however, it would be more desirable to gather your own.
6. No modern appliances, including ranges, blenders, mixers, ovens, etc., may be used. Cook and prepare jams, etc. All cooking should be done over a wood fire.
7. Refrigerators/freezers may be used.
8. Meats, fish or fowl may be purchased, trapped, caught or hunted.
9. The meal should serve one or more.
10. No group projects.
11. A maximum of $1.00 may be spent.

IV. Ideation

Select several breakfasts, lunches, and dinners, take into account all details which will have to be taken into consideration.

V. Develop the Product

In this case the product is the meal. Select the meal which you feel is the most challenging and/or the most fun to produce. Gather the foods in their natural state and alter their form as necessary. Identify a time and place for your meal to be eaten.

VI. Assessment

Be sure to take into account the nutritional value of the meal. If you are eating alone, rate yourself on the meal; if others are also included, ask each to offer a critique on the meal.

VII. Extended

(a) Select a period of time, or a country, and identify a meal or food which they produce. Try to prepare the food using the same technology available to them. You may form a group and prepare several types of foods as a group project.

(b) Gather fruits and prepare natural types of jams which can be sold. The profits made can be used to purchase items/equipment necessary to do more. Form a corporation and carry this as far as desired.

VI CREATIVITY ASSESSMENT

A review of the literature indicates that there is a great deal of controversy when discussing the subject of creativity. Some authors indicate high correlations with certain test results and creative individuals which others authors repudiate the tests. One thing seems to be clear, there is no single, absolute test which will identify the highly creative person. "Just as intelligence, or an I.Q. score is usually an inadequate predictor of specific performance, so are generalized indicators of creativity ususally inadequate." (Hinton, 1970 P. 210). Some experts in the field are concerned with the mis-interpretation of creativity test scores as being absolute indicators. Guilford (1971, JCB P. 83) warns; "One needs to be wary with regard to any test that is claimed to be a test of creativity, even though it seems to fit a plausible theory concerning that concept." Others pointing out weaknesses in dealing with the subject state: "There is a great deal to be learned about the assessment of creative problem solving. It is quite clear that simple measures of fluency, flexibility and originality are not sufficient (Treffinger, Renzulli and Feldhusen, 1971 P. 109).

If identification of the high creative student is necessary, some method of testing should be undertaken. In referring to a study undertaken by Merrifield, Gardner and Cox, Guilford says "under normal classroom conditions, teachers have been found to be poor evaluators of creative qualities. Their ratings of such traits are likely to correlate strongly with I.Q.s of students, which in turn, are related to achievement, which teachers know most about. (Guilford, 1971 P. 84)

A person can be creative in various ways. Creativity is universal. We all have cretivity to some degree and this varies from person to person. Creative potential is a normally distributed trait in the population. Like

intelligence intellectual creativity among individuals lies along a continuum. Therefore, students will have more or less creativity rather than be creative or not creative (Williams, 1967 P. 173).

Rather than approach the problem of developing a new way to detect creativity in students or discriminate between highly creative and students of less creative ability, a test was developed which combined the concepts of several existing tests. Since the test items selected from larger numbers, altered, new items inserted, this composite test is not validated. This Cluster of tests is designed to be a brief, rather coarse screening device for identifying creative adolescents. The tests include:

1. *A remote association test.*
2. *A preconscious activity scale (inventory).*
3. *Fluency test.*
4. *Pun test.*
5. *Peer test.*
6. *Teacher rating.*

RAT TEST

(Remote Association Test)

Name _____
Last *First*

School _____ *Class* _____

City _____ *State* _____

Age _____ *Sex* _____ *Place of birth* _____

First learned language _____

Instructions

In this test you are given three words and asked to find a fourth word which relates to all three. Write this word in the space provided.

For example, what word relates to these three?

cookies sixteen heart _____

The answer is "sweet:. Cookies are sweet; sweet is part of the phrase "sweet sixteen" and part of "sweet heart!"

Here is another example:

poke go molasses _____

The answer is "slow". "Slow poke", "go slow" and "slow as molasses". As you can see, the fourth word may be related to the other three for various reasons.

Now go onto the next page. Many of the items are not easy and you will have to think about some for a while. If you have trouble with some groups of three, go on to the next and come back later. Give only one answer to each question. Guess if you think you have the correct answer. You have 20 minutes.

VOCATIONAL SCHOOLS

Remote Association Test

1.	world	fun	mouse	_____	1.
2.	rock	note	group	_____	2.
3.	soup	wood	super	_____	3.
4.	sick	neighbor	valentine	_____	4.
5.	technical	fish	study	_____	5.
6.	cigarette	cream	dragon	_____	6.
7.	fly	ball	cloud	_____	7.
8.	burn	shine	hot	_____	8.
9.	bank	broke	belt	_____	9.
10.	butterflies	acid	pump	_____	10.
11.	sea	fever	vomit	_____	11.
12.	learn	swap	presents	_____	12.
13.	flying	snake	circus	_____	13.
14.	question	blood	study	_____	14.
15.	cake	swiss	mouse	_____	15.
16.	[illegible]	hard	peanut	_____	16.
17.	Colonel	afraid	egg	_____	17.
18.	dance	foot	snow	_____	18.
19.	car	museum	candle	_____	19.
20.	smell	apple	tree	_____	20.

_____ Answer Sheet

Vocational School Remote Association Test

1. disney
2. music
3. bowl , stick
4. love , friend, heart, candy
5. school , oceanography, biology
6. puff
7. high
8. sun
9. money
10. stomach, up down
11. sick
12. trade
13. python
14. test
15. cheese
16. shell, salt
17. chicken
18. ball, shoe, fall
19. wax
20. blossom

Name _____
Last First

School _____ Class _____

City _____ State _____

Age _____ Sex _____ Place of Birth _____

Preconscious Activity Scale

1. _____	1.	In writing a report, I find searching for ideas the most distasteful part of the project.
2. _____	2.	I rarely come up with novel or unusual ideas.
3. _____	3.	I often day dream about unsolved problems or activities.
4. _____	4.	I would prefer to edit than write a book.
5. _____	5.	I often prefer to be alone so I can think things through.
6. _____	6.	I am regarded as a person of many ideas.
7. _____	7.	If I had the talent, I would prefer to be a creative artist than an influential public figure.
8. _____	8.	I prefer teachers who give well organized courses and clear assignments to those who require independent reports and papers.
9. _____	9.	I would like to invent things.
10. _____	10.	I enjoy problems which have precise answers to those whith several or many answers.
11. _____	11.	If I had the talent I would rather be a musician than a banker.
12. _____	12.	I think I am a practical rather than an imaginative person.
13. _____	13.	My friends regard me as somewhat absent minded.
14. _____	14.	I place a greater value on humor than most people my age.
15. _____	15.	I show more independence of judgment and less conformity of thought than most others my age.

16._____ 16. I feel that I am a creative person.

17._____ 17. I am more preoccupied with what others think of me than most people.

18._____ 18. More than most people, I try to stick close to realistic; expected behavior.

19._____ 19. I am different from most people.

20._____ 20. I tend to give unusual responses to questions.

21._____ 21. I have less energy than most people my age.

22._____ 22. I would rather have a job that pays well and has more status than one that interests me more.

23._____ 23. I would like to have my own business someday.

24._____ 24. I am more aesthetically sensitive (like beautiful things) than most people of equal intelligence.

25._____ 25. I would consider myself industrious and become absorbed in tasks rather than courteous, neat and orderly.

Preconscious Activity Scale

1. *False*
2. *False*
3. *True*
4. *False*
5. *True*
6. *True*
7. *True*
8. *False*
9. *True*
10. *False*
11. *True*
12. *False*
13. *True*
14. *True*
15. *True*
16. *True*
17. *False*
18. *False*
19. *True*
20. *True*
21. *False*
22. *False*
23. *True*
24. *True*
25. *True*

Name _____
Last First

School _____ Class _____

City _____ State _____

Age _____ Sex _____ Place of Birth _____

Fluency Test

In this test you are to rely on speed as well as thinking. In the first part you are to list as many possible answers as you can to the questions asked. You may list more than the number of spaces provided.

In Part II you are to make up four word sentences using the initials as they appear on the statement.

Example:

S _____ M _____ A _____ D _____

SHE _____ MADE _____ ANOTHER _____ DRESS _____

When you "get stuck" on any question, move on to the next one. You may return to questions at any time; however, you have fifteen minutes to complete the test.

Part I

1. List objects that are solid, white and edible.

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

2. List things that come in pairs

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Part II

Make up four word sentences using the initial letters as they appear.

Only complete sentences count.

3.	W_____	C_____	E_____	N_____
4.	Y_____	H_____	A_____	E_____
5.	D_____	Y_____	L_____	S_____
6.	T_____	H_____	N_____	G_____
7.	E_____	G_____	L_____	B_____
8.	T_____	I_____	B_____	S_____
9.	F_____	B_____	A_____	G_____
10.	O_____	P_____	I_____	F_____

PUN TEST

A list appears on the next page. Your task is to make up a definition for each of these words. NOT its real meaning or how the word would be defined in a dictionary. The meaning you give each word will be a "pun" - defining the word by changing its pronunciation and/or the meaning of parts of the word. Most definitions can be stated in two to five words. None can exceed seven words. Here are some examples to help you understand your assignment:

Word to be defined	*(Your) Definition*
illegal	*sick bird*
abuse	*a motor vehicle (bus)*

The above examples may be broken down as follows:

illegal = ill egal (eagle)
sick bird

abuse = a buse
a bus
a motor vehicle

Some words are harder than others to define as a pun and you may have to examine the item closely to see the pun. You will have 15 minutes for this exam.

Name _____
Last First

School _____ Class _____

City _____ State _____

Age _____ Sex _____ Place of Birth _____

PUN

Word to be defined	Your Definitions
1. Kidnap	1. _____
2. overtired	2. _____
3. bulldoze	3. _____
4. Jargon	4. _____
5. Hotdog	5. _____
6. Cowboy	6. _____
7. Brainwash	7. _____
8. Quarterback	8. _____
9. Armature	9. _____
10. Organ Grinder	10. _____
11. Hydrophobia	11. _____
12. Forearm	12. _____
13. Butterfly	13. _____
14. Boardwalk	14. _____
15. Reindeer	15. _____
16. Road Block	16. _____
17. Nightmare	17. _____
18. Chewing Gum	18. _____

Name _____
Last First

School _____ Class _____

City _____ State _____

Age _____ Sex _____ Place of Birth _____

PEER RATING TEST

Let's assume that we are going to make a T.V. show and we want people playing the parts close to the way they behave anyway. Who would you recommend for the various parts. For example, if the character were a baseball player, the part should be played by the best baseball player in your class (even if you do not like him or her. Our show will require eight people. Write in the name of your classmate (in this class) who is most like the description. If you think you are the person write in your own name. If you think two people are equal, write in both names. DO NOT USE A NAME MORE THAN ONCE. Leave a space blank if no one fits the part.

Part I This part will be played by someone who keeps working for a long time trying to understand anything new which can be examined. This person sticks to problems and is last to give up when looking for answers to problems. This pupil likes to take things apart but will work long and hard to put them together to find out how they work. _____
Name

Part II This part will be played by a person that is clever with things and seems curious about different things. This person sometimes gets into mischief and may sometimes get on the teachers nerves. This person likes to "do his/her own thing". He/she may be somewhat of a non-conformist. _____
Name

Part III *This part will be played by someone who is a fun loving character. He/she has a good sense of humor. This pupil's grades may not be all that great, but most people would agree this person is fairly smart anyway.* _____

Part IV *This part will be played by someone who seems to watch everything that is going on. He/she seems to see everything and is first to notice anything new.* _____

Part V *This part will be played by a person who seems bored and disinterested with everything. When something new is introduced this person doesn't bother to look at it or may just give it a slight glance. This person does no more than he/she has to. He/she doesn't seem to be a student of even average ability.*

_____

Part VI *This part will be played by a person who is popular because of their physical talents. He/she may be a good athlete; or pretty or handsome. The person is likeable character but does not seem very smart or talented.* _____

Part VII *This part will be played by a pupil who seems to avoid asking questions. When something new or strange happens this classmate seems to withdraw from it. This member of the class loses interest very quickly and refuses to rush into new things. When something new is brought into the classroom, this pupil is usually standing in back of the others who are looking at it and is the first to leave a group where someone is showing something new. This classmate often pokes fun at things because they are different.* _____

Part VIII *This part will be played by a pupil who misses seeing the things that other members of the class see easily. Even when doing very little this pupil is not easily disturbed by things that happen in the classroom. When something new or strange is brought into the classroom this classmate often does not look at it or just gives it a slight glance.* _____

_____

EVALUATION

Part I	+4
Part II	+3
Part III	+2
Part IV	+1
Part V	-4
Part VI	-3
Part VII	-2
Part VIII	-1
Not Mentioned	0

Student List	Scores	Total
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

TEACHER RATING

Student_____ Class_____

Part I

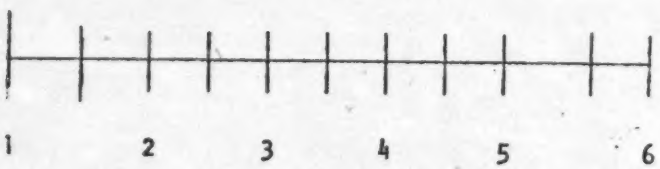
Please underline the most fitting characteristic of the student named above.

A. Originality

1. Never creates, always copies
2. Seldom is creative
3. Average
4. Is quite creative
5. creative
6. Has many good idea

B. Flexibility

1. Conservative
2. Resents considering new ideas
3. conforms
4. Prefers the old and familiar
5. Average
6. Progressive
7. Receptive to new ideas
8. Curious and interested inall novel experiences



Teacher Rating

A. 1. - 3
2. - 3
3. - 2
4. + 3
5. + 3
6. + 3

B. 1. - 1
2. - 2
3. - 2
4. - 2
5. - 1
6. + 2
7. + 2
8. + 3

State of New Jersey
GLASSBORO STATE COLLEGE
GLASSBORO, NEW JERSEY 08028

INDUSTRIAL EDUCATION AND TECHNOLOGY

To: Dickinson Gardiner, Chairperson of the Curriculum Committee

From: Dr. C. Samuel Micklus

Date: August 15, 1978

Re: Proposal for a New Course

Title: Teaching Gifted/Talented Students in Vocational Education

Sponsor: Dr. C. Samuel Micklus and Mr. Donald L. Andersen

ESSENCE OF THE PROPOSAL

1. The course will be offered at the 400 level, available to upper level undergraduate students and graduate students.
2. Course credit would be three semester hours.
3. No pre-requisite would be required.
4. The course would be a special elective to matriculated vocational students as well as a free elective to others.
5. Implementation would be the Spring of 1979. This course would then be offered periodically, perhaps once a year.

OTHER DETAILS

1. Adequate staff is currently available.
2. No additional laboratories are required.
3. The course would be unique within the college.
4. Some additional library books should be purchased.

SPECIFIC OBJECTIVES FOR THE COURSE

1. To have students develop a plan for implementation of a gifted/talented program in a vocational school.
2. To have students develop curriculum materials and become aware of available materials for a gifted/talented progam.
3. To have students become familiar with techniques for selecting students for a gifted/talented program.
4. To have students become aware of problems and teaching strategies for a gifted/talented program.

EVALUATION

Evaluation procedures will be based on classroom activities, criticisms of work completed, and demonstrated knowledge of material covered.

TOPICAL OUTLINE

1. Creative Problem Solving
2. Developing Curriculum Materials
3. Selecting Gifted/Talented Students
4. Community and Advisory Groups
5. Fostering Flexibility within the School
6. Potential Problems for a Gifted/Talented Program
7. Evaluation Techniques

RATIONALE

This course would provide an opportunity for students to help meet a neglected area in vocational education. In order to help meet the individual needs of all students, it is imperative that the gifted/talented students be included. The course would also offer students in the vocational program as well as students outside the program skills to enhance their professional growth.

CONSULTATION

This course has been approved by the Department of Industrial and Technology. In addition, a seminar for creative students in vocational education was held at Glassboro State College on April 21, 1978. A specific recommendation at the conference was to consider the development of a college curriculum at both the graduate and undergraduate level.

CATALOG DESCRIPTION

This course includes creative problem solving activities and their development. Beginning a program for gifted/talented students is discussed including student selection, evaluation and problems which might occur.

4. Eliminate Sex Bias

The researchers feel that in a program for gifted/talented students sex bias would eliminate itself. All courses including all male, all female and mixed would be included. The student selection process would be established by each school and all gifted/talented students needs would be met.

C. SUMMARY

1. Conclusions

A program for gifted/talented students should exist in all vocational schools. Selection of the students should be based on more than a single test or factor. Each school may use its own criteria for acceptance in the program. A number of tests are offered including teacher ratings and peer ratings.

The most appropriate method of teaching the gifted is through problem solving. A problem solving model and sample problems given which offers the student the opportunity to develop a unique solution to the problem and an opportunity to extend him or herself beyond.

2. Recommendations

It is recommended that schools attempt to begin a program for creative students. A summary of recommendations from the creativity seminar has been presented earlier which has implications for agencies of the State Department, Glassboro State College and area vocational schools.